arises from well-recognized and inflexible causes (environment, heredity, etc.). It is, therefore, a reality, not a closet creation. Herr Buchner has by no means destroyed it in his amusing attack on the great Berlin professor and his many books.

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NOTES ON INORGANIC CHEMISTRY.

THE use of coke ovens which permit the recovery of by-products has become established on the continent of Europe, and several plants have been established in this country. In the *Proceedings* of the Alabama Industrial and Scientific Society, Wm. H. Blauvelt gives a description of the Semet-Solvay oven at Ensley, Ala. The coal is coked in retort ovens, the usual change being 4½ tons. The time of coking is twenty-four hours. The amount of gas given off is eight to ten thousand cubic feet per ton, a part of which is used to heat the retort and for steam to operate the plant, leaving considerable gas available for heating and lighting purposes. The ammonia recovered is 16 to 22 pounds per ton, calculated as sulfate, and the yield of tar from 70 to 80 pounds. The yield of coke (75 per cent.) is ten per cent. higher than that obtained by the old beehive ovens. The cause of this is that the evolved gases, which are more or less completely burned in the beehive, are to some extent decomposed in the retort oven, graphitic carbon being deposited on the coke. In the beehive oven too some of the coke is consumed by the air present. The quality of the coke is pronounced equal to that produced in the old ovens, and some coals are available for coking which cannot be successfuly used with the beehive oven.

IN the *American Manufacturer*, W. B. Phillips gives the results of the Otto-Hoffman coke ovens at Jefferson Co., Ala. Here, using washed coal, the yield is: gas, 9,600 feet per ton, of which about 3,000 feet are available after all required on the plant; ammonium sulfate, 23.6 pounds; tar, 90 pounds; coke, 70 per cent. It is an encouraging sign to see the adoption in this country of industrial methods which have for their aim the saving of by-products.

IN an article on Aluminum as a reducing agent, in the *Chemiker Zeitung*, Léon Franck gives the following summary: Aluminum decomposes phosphates at high temperature, with evolution of phosphorus; in the presence of silica the liberation of phosphorus is almost quantitative. Aluminum forms several different compounds with phosphorus, Al_7P_3, Al_5P_3, Al_3P and AlP, all of which are decomposed by water with evolution of phosphin, PH_3. Carbon dioxid, carbon monoxid and carbonates are decomposed by aluminum with liberation of free carbon. Metallic oxids are decomposed giving the metal; sulfates, giving sulfur and sulfids; chlorids, giving the metal. A mixture of aluminum powder and sodium peroxid moistened with water burns spontaneously with a brilliant light. There are many possibilities of the development of the use of aluminum powder along technical lines.

J. L. H.

SCIENTIFIC NOTES AND NEWS.

VASCO DA GAMA CELEBRATION.

THE festivities at Lisbon in commemoration of the discovery of India by Vasco da Gama began on May 15th. There were illuminations and fêtes both in the city and on the warships of various nations assembled in the harbor. The commemoration was also celebrated in Great Britain at a meeting of the Geographical Society on May 15th, at which addresses were made by the Prince of Wales, Lord George Hamilton, the Portuguese ambassador and by the President of the Society, Sir Clements Markham, who read a paper on 'Vasco da Gama,' in the course of which he said, according to the report in the London *Times*, that they were assembled to commemorate one of the